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Case Report

# Aggressive central giant cell granuloma of the mandible: A diagnostic and surgical challenge in an adult female

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## Abstract

Central Giant Cell Granuloma (CGCG) is a benign intraosseous lesion of the jaws that often presents with varying degrees of aggressiveness. Large lesions may cause significant tooth mobility, expansion of bone and cortical destruction, necessitating surgical resection. We present a case of an extensive mandibular CGCG in a 40-year-old female who reported with painful swelling and multiple mobile teeth. Radiographic imaging revealed extensive cortical erosion. Wide surgical excision and multiple extractions were performed under general anaesthesia. Histopathological examination confirmed the diagnosis of CGCG. This case highlights the diagnostic importance of imaging and histopathology, as well as the need for individualized surgical planning in the management of large, aggressive CGCGs.

**Keywords:** Central giant cell granuloma, Intraosseous lesion, Mandibular swelling

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## 1. Introduction

Central giant cell granuloma (CGCG) is an intraosseous lesion characterized histologically by multinucleated giant cells within a vascular stroma. It typically affects the mandible and may behave aggressively, with cortical expansion, tooth mobility, and root resorption.[1] The clinical presentation can be misleading, especially in the early stages, and may be mistaken for other benign jaw lesions. Prompt imaging and histological evaluation are essential to avoid diagnostic delays and to plan appropriate treatment.

We report a case of a CGCG in a middle-aged female, emphasizing the critical role of histopathological evaluation and preoperative imaging in diagnosis and surgical planning.

### *1.1. Case presentation*

A 40-year-old female presented with a 15-day history of painful swelling in the left posterior mandible. The pain was continuous, throbbing in nature, and exacerbated during mastication.

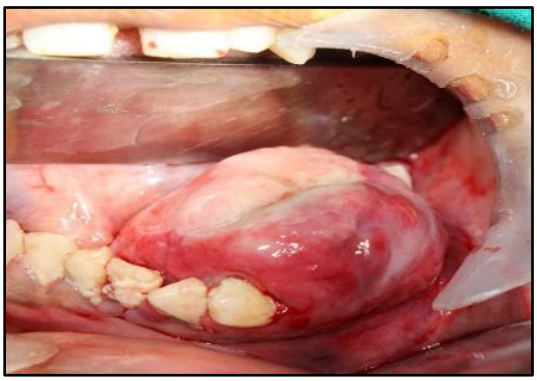

**Figure 1:** Preoperative image showing the lesion

Intraoral examination revealed a 5 × 5 cm exophytic growth on the mandibular alveolar ridge, extending from teeth 41 to 36. The lesion had a smooth surface with sharp demarcation at the superior margin and exhibited erythema at its base.

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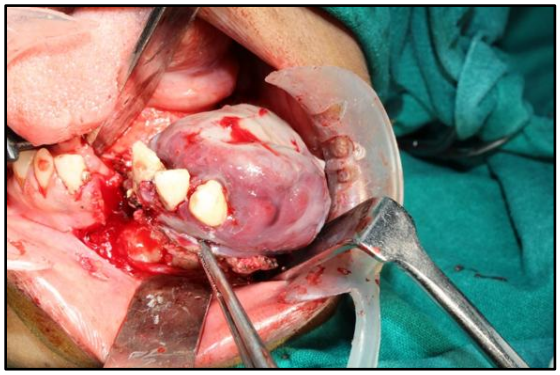

**Figure 2:** Surgical excision with 5mm of clearance.

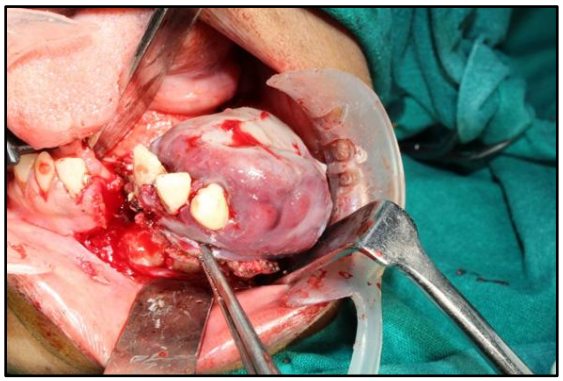

**Figure 3:** Excision of lesion in to-to.

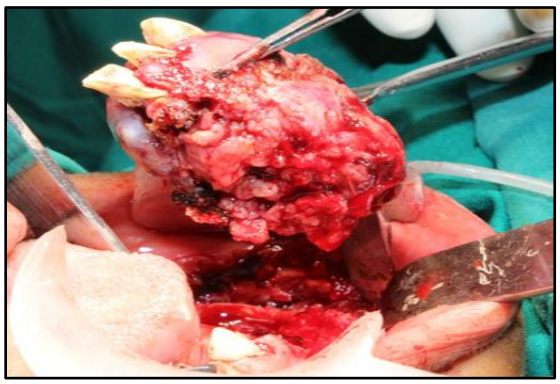

**Figure 4:** Post-excision showing saucer shaped bony defect.

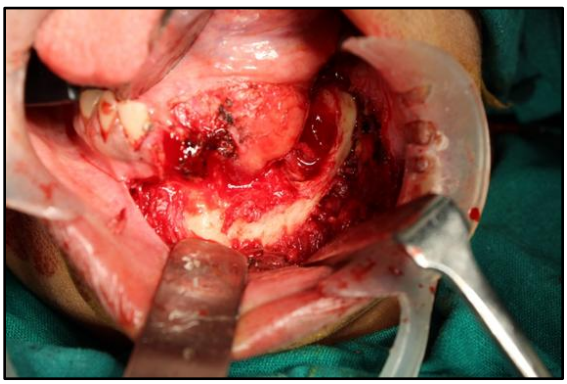

**Figure 5:** Follow-up 6 months.

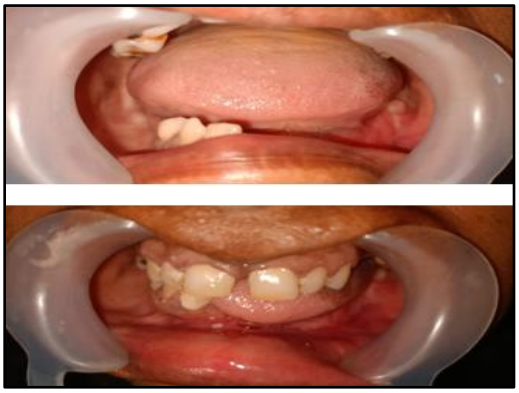

**Figure 6:** Follow-up 6 months.

The overlying gingiva appeared smooth, with no signs of necrotic bone. The swelling was soft to firm in consistency, tender on palpation, and did not bleed upon probing. Mobility was noted in teeth 31 to 35, which were also included within the extent of the lesion (**Figure 1**). Preoperative radiographic evaluation revealed significant cortical bone erosion underlying the lesion, suggestive of an aggressive intraosseous process.

Surgical excision with a 5 mm margin (**Figure 2**) was performed under general anaesthesia, along with extraction of the involved teeth (**Figure 3**) and primary closure. Intraoperatively, a saucer-shaped cortical bone defect was observed beneath the lesion site (**Figure 4**). Histopathological examination demonstrated multinucleated giant cells dispersed within a fibrovascular stroma, accompanied by areas of hemorrhage and osteoid formation—confirming the diagnosis of central giant cell granuloma.

The patient was regularly monitored postoperatively and followed for six months (**Figure 5 & Figure 6**). Healing was satisfactory, with no clinical evidence of recurrence or postoperative complications.

## 2. Discussion

CGCG accounts for approximately 7% of benign jaw lesions and has a higher prevalence in females, especially those under 30 years of age, although it may also occur in older individuals.[2-3] While many CGCGs are asymptomatic, aggressive variants can cause swelling, cortical expansion, pain, root resorption, and tooth displacement.[4]

In this case, the lesion demonstrated aggressive behaviour with significant bone involvement and tooth mobility. Preoperative imaging revealed cortical erosion, a key feature in identifying intraosseous lesions such as CGCG. Absence of such imaging in similar presentations can lead to delayed diagnosis and suboptimal treatment outcomes.[5]

Histologically, CGCGs consist of multinucleated giant cells within a fibrovascular connective tissue stroma and

often exhibit haemorrhagic foci and hemosiderin deposits.6[6]. Differentiation from other jaw lesions, such as aneurysmal bone cysts, cherubism, or brown tumour of hyperparathyroidism, is essential.[7] Therefore, a full diagnostic workup including serum calcium, phosphate, and parathyroid hormone levels is recommended to exclude systemic conditions such as hyperparathyroidism.[8]

Treatment options vary depending on the lesion's behaviour. Non-aggressive CGCGs may respond well to curettage or pharmacological approaches (e.g., intralesional steroids or calcitonin), while aggressive lesions require resection.[9] Recurrence rates range from 10–20%, particularly in cases of incomplete removal.[10] In this case, the patient underwent wide local excision, with no recurrence observed over a 6-month follow-up period.

## 3. Conclusion

This case highlights the importance of preoperative imaging and histopathological confirmation in diagnosing aggressive central giant cell granulomas. Early recognition, especially with atypical presentations, is critical in preventing extensive bone loss and recurrence. Comprehensive surgical planning and regular postoperative follow-up are essential for successful outcomes.

## 4. Source of Funding

None.

## 5. Conflict of Interest

None.

## References

1. Chrcanovic BR, Gomez RS. Central giant cell granuloma of the jaws: An updated analysis of 2275 cases reported in the literature. *Int J Oral Maxillofac Surg.* 2020;49(4):402–18.
2. Huang Y, Wang Y, Zhao Z, Zuo H, Zhao Y. Central giant cell granuloma of the jaws: A review of 106 cases with emphasis on prognostic factors. *Med Oral Patol Oral Cir Bucal*. 2020;25(2):e231-8.
3. Iida S, Kuroda M, Kato T, Komatsu M, Tanaka N. Management and recurrence factors of central giant cell granuloma of the jaws: A multicenter study. *Oral Surg Oral Med Oral Pathol Oral Radiol*. 2022;133(1):61–8.
4. Bakos LH, Falcão MC, Nascimento LA, Santos HL. Aggressive central giant cell granuloma in the mandible: A case series and literature review. *J Stomatol Oral Maxillofac Surg*. 2021;122(3):270–5.
5. El-Naggar AK, Chan JKC, Grandis JR, Takata T, Slootweg PJ. WHO Classification of Head and Neck Tumours. 4th ed. Lyon: IARC Press; 2017.
6. Nunes JF, de Souza LB, de Moraes M, Torres TF, da Silva VC. Central giant cell granuloma of the jaws: A clinicopathological and immunohistochemical study. *Med Oral Patol Oral Cir Bucal*. 2017;22(5):e554–60.
7. Van Damme PA, Merkx MA, Stoelinga PJ. Diagnosis and management of giant cell lesions of the jaws. *Int J Oral Maxillofac Surg.* 2018;47(7):826–30.
8. Saeed NR, Hashim N, Omar E. Hyperparathyroidism presenting as multiple central giant cell granulomas: A case report and review. *BMC Oral Health*. 2021;21(1):445.
9. de Lange J, Van den Akker HP, Van den Berg H. Intralesional corticosteroid injections in the treatment of central giant cell granulomas of the jaw: A prospective study of 17 cases. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod*. 2018;125(4):365–71.
10. Pogrel MA. The diagnosis and management of giant cell lesions of the jaws. *Ann Maxillofac Surg.* 2012;2(2):102–6.

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